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Hyman P. Minsky Ph.D.

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# Bard

# Alternative Macroeconomic Models

by

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"These are troubled times for macroeconomics, both theory and application to policy."

James Tobin, Asset Accumulation and Economic Activity (pviii)

Paper prepared for Midwest Economic Association Meetings, Chicago, April 3, 1982.

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## I. Introduction: The Spectrum of Economic Theories

Progress in a scientific discipline takes place as new theory is created in response to inadequacies of inherited theory that are made evident by experience. Some twenty years ago Tobin would have gloated (he did in his Noel Buxton lecture at Essex University in 1966) that macroeconomic theory was in good shape, for it provided society with powerful tools for projecting how the economy would behave under various policy scenarios. With theory in good shape, policy makers, who had the good sense to listen to economic theorists, were able to take steps to guide the economy along a preferred and satisfactory path.

Over the past fifteen years the analytical and policy regime that ruled the roost in the early 1960's has exhibited evident shortcomings. As the theory that was successful in the 1950's and 60's was used to guide policy in the 1970's the results fell short of what had been achieved in the earlier epoch. For more than a decade policy has been unsuccessful, for the performance of the economy has been unsatisfactory.

Thus, observed relations between policy actions and the performance of the economy can be interpreted as the results of scientific experiments. The results of recent experiments have not conformed to scenarios deduced from the theory so that a rational scientist's belief in the validity of the theory that led to the scenarios would decrease. Thus, these are troubled times for the macroeconomics that ruled in the 1960's, even as they may be good times for economists who are willing to engage in the quest for new theory. The time has come for economists to at least be willing to contemplate sloughing off the skins of inherited theory.

The critical performance characteristics of the recent past that belie the validity of the neo-classical macroeconomic theory of the 1960's are

- (1) The cyclical turbulence,
- (2) The intermittent treats of financial crises that led to lender of last resort interventions by the Federal Reserve,
- (3) The decrease in the statistical artifact--the rate of growth of G.N.P.
- (4) The stepwise rising unemployment rates in the intervals between the threats of financial crises, and
- (5) The stepwise rising inflation rates in the same intervals.

These performance characteristics yield the data that theory needs to explain. The hope underlying the quest for "new theory" is that inferences from a theory that explains the recent unsatisfactory behavior will indicate policy interventions that can constrain or eliminate undesired performance characteristics.

A crisis in theory changes the questions economists must address. When theory is in "good shape" the problems of a discipline are to make things more precise and to apply existing theory to new problems. When theory is troubled questions as to what theory is to deal with and how theoretical problems are to be attacked move to the fore. Furthermore, when theory is in "crisis," new breeds of theory as well as old breeds in new dress appear: the discipline has a spectrum of theories from which to choose and a bewildering menu of alternative actions are suggested to policy makers. In disciplines unencumbered by ideology the competition among theories leads to a deeper understanding of the subject. In disciplines where ideology clutters up the landscape, disarray in theory opens the door to policy quackery.

Ever since scientific economics began two quite different "big questions" have concerned economists. Economists have undertaken to understand why coherence rules in an economy, even though there is no coordinator of the behavior of units; units behave under no guiding principle

but self-interest (within constraints imposed by effective law). Economists have also undertaken to explain why one country is richer or poorer than another (or why the richness of a country varies with time).

The demonstration that coherence results from decentralized decisions follow from the structuring of economic theory in terms of markets. The insight of genius on which this theory rests is that the economy can be understood by assuming it is like a village market. The second problem, to explain differences in wealth, is answered in terms of differences in the capital stock, i.e., in the results of accumulation. The central problem of economics from this viewpoint is to explain accumulation and how accumulation affects the course of the economy.

The two problems--coherence and accumulation--lead to the major differences among economic theories. One line of development of economic theory--the neo-classical wing--extends the arguments and analytical techniques based upon the analogue of an economy with a village fair to more complex situations which entail production as well as trade, the determination of absolute as well as relative prices and accumulation as well as the utilization of existing resources. The research program in these theories is to extend the equilibrium results derived for trade to production and accumulation.

The explanation of differential richness or of the course of richness over time centers around the processes by which resources are created and sustained. The standard economist explanation of the course of richness emphasizes the capital asset endowment of an economy (capital assets are produced inputs in production processes). "What determines the amount and the direction of capital asset creation?" is the central question for economics if it is to explain richness, either among economies or in an economy over time.

Whereas the analysis of trading can be treated without attention to specific institutional details and the processes can be conceived of as "reversible," so that time can be ignored, accumulation processes are dependent upon mechanisms that are used to free and gather resources for the production of capital assets and the circumstances under which capital assets are used. Because accumulation takes time, results are from decisions undertaken with the future in mind and are validated or repudiated by later events, the economics of accumulation, or of resource creation, must deal in an explicit way with the path of the system in historical time. Furthermore, the institutional structures which lead to dated relations among units are an essential attribute of the accumulation process, in the sense that the path of the system over time, the very pace of accumulation, depends upon the structure of dated relations. In particular under capitalist conditions the accumulation process depends upon the ways economic activity is financed. This means that banks and the ways in which money is created, are central to the economy. Whereas resource utilization economics can be characterized as viewing the economy from the perspective of exchanges at a village fair, the resource creation economics for a capitalist economy can be characterized as viewing the economy from the perspective of deals that are made in the board rooms of investment banks.

Therefore, one central difference between the economics of resource utilization and the economics of resource creation is in the role of money. In models set up to explain resource utilization money is a medium of exchange that has the sole function of setting the nominal prices on current output. In models set up to explain resource creation money arises in the process of financing investment and ownership (positions) in capital assets. Money, in some versions of the resource accumulation paradigm, is created as part of the

mechanism by which accumulation is forced.

There is another aspect in which the two approaches differ. Economic theories which first examine resource utilization show that consistent or equilibrium outcomes result from market processes. Economic theories which emphasize accumulation tend to show that stresses and strains and even inconsistent or contradictory results emerge. These "strains" lead to either breakdowns of "coherence," or to a need for policy interventions.



## II. "Coherence Based" Macroeconomic Models

Although the contrast between economic theories that emphasize that market processes yield a coherent utilization of given resources and those that emphasize accumulation may result in incoherence existed before Keynes, macroeconomic models can be differentiated by the way Keynes is interpreted and the weight given to Keynes' insights with respect to the significance of financial markets under capitalist conditions. The pure "classical" model of the textbooks is a statement after Keynes of some pre-Keynesian views, nevertheless it is a good starting place for a journey through models that are based upon the "coherence" paradigm.

The structuring of the economy in terms of markets, in which supply and demand relations are used to show how consistency or coordination is achieved, is the basic analytical device of the economics of resource utilization. These supply and demand relations are derived from explicit preference systems, production relations and maximizing behavior. In particular any unit's supply of labor is a function of the rewards that can be achieved and any unit's demand for labor is derived from profit payoffs from using labor. In this view the supply and demand for labor as functions of the real (price level deflated) wage determine employment and real wages. Given the "production relations," employment determines output. The distribution of output among different productions is determined by relative prices. In particular "the interest rate" is the term of exchange between current input to production and future output and between current forgone consumption and future consumption. These relations determine saving and investment and the equating price, the real interest rate. This pre-Keynesian model is augmented by the quantity theory of money, which yields the price level.

The basic attribute of the pre-Keynesian model is that labor market equilibrium is the dominant income determining relations. The dominance of "the" labor market is characteristic of the neo-classical macroeconomic model.

The standard version of Keynesian macroeconomics starts from the 1937 Hicks IS and LM formalization. This was modified by Patinkin in 1956 and Modigliani in 1963. These later models interpret Keynes as an interdependent market equilibrium system, which determines a simultaneous equilibrium in commodity, money and labor markets.

In the Hicks version the IS curve is the locus of all interest rates and incomes for which the commodity market is in equilibrium and the LM curve yields interest rates and income combinations for which the money market is in equilibrium. Their intersection determines the income and the interest rate which simultaneously equilibrates the two sets of markets. The IS curve of Hicks embodies a negatively sloped demand function for investments, which was not in any essential respects different from the negatively sloped investment function in the pre-Keynes classical model.

The IS-LM curves yield aggregate demand, which is transformed by an employment function into a demand for labor. Employment might very well fall short of what labor is willing to supply, but within this model there are no market processes at work that would, by their operations, remove the unemployment. Because Hicks' model entailed the possibility of unemployment, it opened the logical question of why excess supply in labor markets did not set forces to work that would eliminate the excess supply.

At this point the Marshallian nature of Keynes's analytical perspective can be introduced. Keynes set up a system of interdependent markets in which

own market reactions lead to shifts in the demand and supply relations in other markets (disrupting other market equilibria) which in turn feed back to the initial market, shifting demand and supply relations. In this complex of changes within relations and shifting relations, the possibility always exists that the repercussions of an initial disequilibrium will make things worse, not better. There is no presumption that once a displacement occurs market processes lead to the initial or to any other equilibria defined by intersections of supply and demand curves. Why should repercussions be damped out when intermarket relations are taken into account is the question at issue, and the answer depends upon shift patterns as the various own market reactions take place. In any complex of intermarket relations induced shifts that can be too great prevent any straight forward equilibrium result from being deduced from "curves" with appropriate slopes.

If "normal" neo-classical supply and demand for labor functions are introduced along with the aggregate demand determining functions of IS-LM, then two quite independent "determinations" of output and employment can exist: One derived from ISLM and the second derived from the labor market. In the hands of Pigou, Scitovsky, Patinkin and Modigliani, this problem was resolved by making the consumption (or savings) propensities of the economy a function of wealth as well as income. In particular, in Patinkin, Modigliani and later Friedman, a price level decline, by increasing monetary wealth, leads to a rise in consumption. In this way, even if the own market reactions to a decline in wages do not lead to a return to "full employment," intermarket reactions, which take the form of an equilibrium facilitating shift in consumption, will lead the economy back to full employment.

Even within the simple real balance augmented Hicksian model, where

movements of money wages affects consumption spending in an equilibrium facilitating way, the arbitrariness of the assumptions are evident.

The IS curve is an amalgam of a consumption and an investment function. If a fall in money wages increases consumption because of a real balance effect it is necessary to inquire what effect a fall in money wages has upon investment demand and the relations that enter the LM function. The Patinkin equilibrium, which shifts aggregate demand so that the labor demand derived from aggregate demand becomes equal to the labor demand and supply equilibrium as derived from the labor market, is a very tenuous result.

In the post-war era mathematical economists succeeded in demonstrating in quite rigorous ways that decentralized markets in which only prices convey information will yield a coherent, or even a conditionally best, result. This striking result was shown to hold under very stringent conditions, but it was taken to mean that the market processes underlying macroeconomic relations would tend to generate and sustain full employment. As a result neo-classical macroeconomics increasingly took the form of highly aggregative models in which the distinction between investment demand and consumption demand was often blurred.

Because the pre-Keynesian classical economics can explain prices but not unemployment and the Hicksian model of Keynes can explain unemployment but not prices, both sets of models need to be augmented. The pre-Keynesian models are augmented by "St. Louis" type relations in which changes in money lead to changes in money income, but the "initial" adjustments lead to a change in output and employment (either up or down as the case may be) but the "ultimate" change is that unemployment returns to its natural rate and is the money supply increase is reflected in prices. The Hicksian model is

augmented by a Phillips curve which, while not as powerful as the quantity theory, relates changes in prices to unemployment rates. As "inflationary" expectations are built into the Phillips curve, the resulting market behavior leads to transitory output and employment effects and "permanent" price level effects. In both the augmented pre-Keynesian and Hicksian models, employment and output, as derived from labor market relations, ultimately dominates.

Throughout the development of resource utilization macroeconomics, assumptions about knowledge about the future were introduced whenever investment or savings were discussed. The permanent income hypothesis implicitly assumes agents know their owned resources and the productivity of these resources. Given knowledge of the expected performance of the economy agents know the incomes they will receive when the economy is functioning normally and can plan consumption paths through time.

The rational expectations versions of pre-Keynesian and Hicksian macroeconomics assume not only that agents form expectations on the basis of weighing knowledge but also that their knowledge includes a specific robust theory of system behavior. This robust theory has the economy seeking and sustaining an equilibrium consistent with the "institutionally affected" natural rate of unemployment: i.e., economic variables are determined by production functions and preference systems. Furthermore the course of policy is fully anticipated, for decision makers are aware of the theory that guides policy molders. One conclusion of the rational expectations argument is that if the normal functioning of the system usually yields an unsatisfactory state and if policy following some rules results in a satisfactory state then as the "actors" learn the policy rules, policy is no longer able to induce satisfactory performance. However, this unhappy conclusion is not the typical

conclusion of the "rational expectations" economists. They typically hold that the outcome in the absence of policy is satisfactory and policy can only lead to a transitory derivation from the equilibrium determined by "basic relations."

### III. "Accumulation Based" Macroeconomic Models

If differential richness among countries over time is the main problem that economics is to explain and if the explanation lies in the differences in the capital assets used in production, then the main problem of economics is to explain accumulation. However, whereas the economics based upon maximization of well being under constraints embodied in trade or production possibilities with given resources is quite independent of institutional specification, the economics of accumulation of resource creation is not. The results depend upon the institutional set up and the technological state of the economy. Thus the problem under investigation is the analysis of accumulation in a capitalist economy with complex and often expensive capital assets, a sophisticated financial system, and which permits innovation. The innovations can be both technological and financial usages. The problem is not to investigate accumulation under abstract conditions.

A capitalist economy with complex and expensive capital assets and a sophisticated financial system has two price levels: one of current output and another of capital assets. In such an economy units have wealth and manage portfolios. Inasmuch as the financial system is complex, the individual who manages portfolios, as well as the managers of institutional and corporate portfolios have a rich menu of assets (and liabilities) from which to choose. Keynes approached the pricing of assets by assuming that money is an asset whose price is always one. Furthermore, each asset is a combination of traits: Keynes identified the traits as yield, carrying costs and liquidity. The utility of holding an asset is derived from these traits and assets will be priced so that the utility on the margin obtained from holding a dollar's worth of any of the assets--tangible or financial--will be the same. Given the money yields only liquidity and that the price of money

is one, the money price of all assets is determined by an equality of utility per dollar condition among all assets. In a world where investment is the key phenomena, the first step in theory construction is the determination of the price level of capital assets.

Why is money "valued" as an asset? Mainly because there is a complex system of debts denominated in money, which means that units (debtors) need to acquire money to fulfill their obligations. Given that there is such a complex of payment commitments and there is uncertainty about the receipt of cash by units, money is held as an insurance policy. The greater the payment commitments relative to income and the more uncertain (variable) expected income, the greater the interest rate on money. But the return on money is implicit, so a greater return on money is translated into a higher return, lower price for all assets that are valued not for their ability to make payment or their ability to be used to acquire cash but for the income they are expected to earn.

Capital assets are produced as investment output; investment output has a supply price that is based upon the costs of labor--the money wage rate. The two price levels of a capitalist economy, that of capital assets and that of current output, are based upon two quite different "numeraires." The numeraire for capital assets is money which has the price of one dollar, whereas the numeraire for current output is wages. The theory of accumulation under capitalist conditions embodies a quantity theory of money, in that money yields the price level of capital assets. In the resource utilization models it is always assumed that the two price levels are the same, whereas in the economics of resource utilization the prices of assets and of output are formed in separate, though linked, markets.

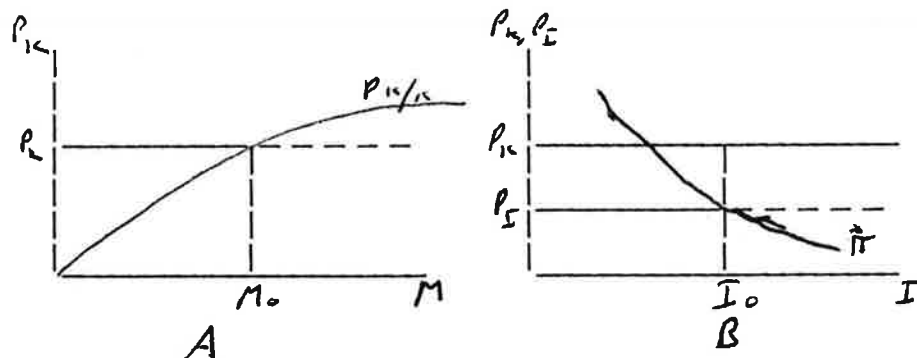
For investment to take place the price of capital  $P_K$  must exceed the



price of investment output  $P_I$ , but this inequality by itself will not determine investment. Investment, like all economic activity, needs to be financed. Investment is a present expense aimed at yielding future income; financing is a transaction which obtains cash now in exchange for an offer to pay cash in the future. The cash flows involved in investment and financing are "offsetting"; the financier gives cash to the investor "now" in exchange for cash to be paid by the investor "tomorrow."

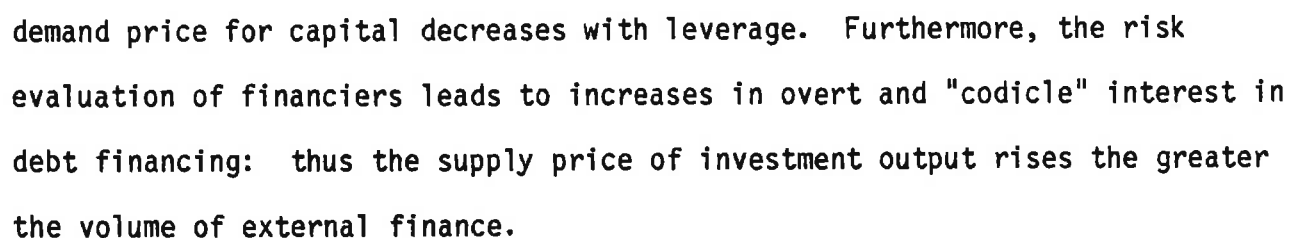
In addition to "external financing," which involves the exchange of money for promises to pay money, investment can also be financed out of the investors income. Any modelling of investment must intergrate financing (in the form of internal and external funds), the price of capital assets and the money costs of investment output. If  $K$  is capital,  $P_K$  is the price of capital assets,  $M$  the stock of money,  $P_I$  the price of investment output and  $\pi^*$  profits after taxes, payments on debts and dividends, the internal financing arrangement can be graphed as

DIAGRAM I



where  $I_0$  is the pre-external financing investment.

$P_K$  is a demand price. Because of borrowers risk, the price asset holders are willing to pay for capital assets decreases with leverage: Hence after  $I_0$ ,  $\hat{P}_K$  the effective



Essential elements in the investment process are that a debt structure is built up in the process of financing investment and positions in capital assets, that gross capital income yields the cash flows that service inherited debts, and that gross capital income in a simple no government closed economy is largely dependent upon the pace of investment. It is important to note

that both  $P_k$  and the willingness to lever, as determined by the difference between spending on investment and  $\pi^*$ , reflect prevailing views about the value of being liquid--which in turn reflects present views about the uncertainties that are being faced. A rise in uncertainty lowers  $P_k$  even as it decreases the "leverage" factor, success and a decrease in uncertainty raises  $P_k$  and increases leverage.

In the accumulation paradigm investment and money are intergrated. Part of the leverage financing of investment comes from banks, the money supply is an end result of financing decisions, and bank money is like a bond as well as a ration point. The transactions and the standards by which money is created are part of the process by which the capital structure of the economy is developed. As a result of the intergratation of money, capital assets and investments a structuring of the relations in terms of "markets" in which suply and demand mainly determine an own price even as changes in the own price impact upon other "markets" misspecifies the interactions.

The accumulation paradigm under capitalist conditions recognizes that the economy can be viewed as an interrelated set of balance sheets and that significant characteristics of balance sheets can be captured by the cash flow commitments embodied in balance sheets. If there are cash flow commitments then there must be sources of cash. The basic source of cash for the "primary" units, (households, business firms and governments) are wages, profits and tax receipts; the result of their "contribution" to current production. The relation between the cash flows as committed in the liability structures and the cash flows as received from income related activities, as well as the contracted receipts from owned financial assets, yields the relation between the particular unit and the need to roll over and increase outstanding liabilities.

I have used the rather fanciful language of hedge, speculative and Ponzi finance to characterize the cash flow relations of units. In the near term, for hedge finance the cash flows to units fully cover the payment commitment, for speculative units the near term income receipts cover the income payments on debts but the principal receipts do not fully cover the debts falling due and in Ponzi finance over the near term income payments are not covered. In other words speculative finance units must roll over their debts and Ponzi finance units have to capitalize interest.

In the accumulation paradigm the lure and the payoff from owning capital assets and investing are of critical importance. Thus the generation of profits, in the sense of gross capital income, and the commitment of profits, to both servicing the liability structure (including shareholders) and taking care of various overhead spending, are important. In any accumulation paradigm it is not possible to assume that an economy which has a history of deviations from full employment always operates at full employment. Therefore the "full employment" or resource utilization characterization of profits as a productivity concept, i.e., profits equals the marginal productivity of capital times capital, is inappropriate. Profits in an accumulation paradigm have to be related to the effective scarcity of capital, which depends upon the course of effective aggregate demand. The critical element for the determination of effective aggregate demand is investment and investment, by way of the effects of expected profits on capital asset values and of current profits on the structure of financing for investment, depends upon profits. Profits, therefore, are the lure that yields investment as well as the cash flows that validate past investment and the liability structure.

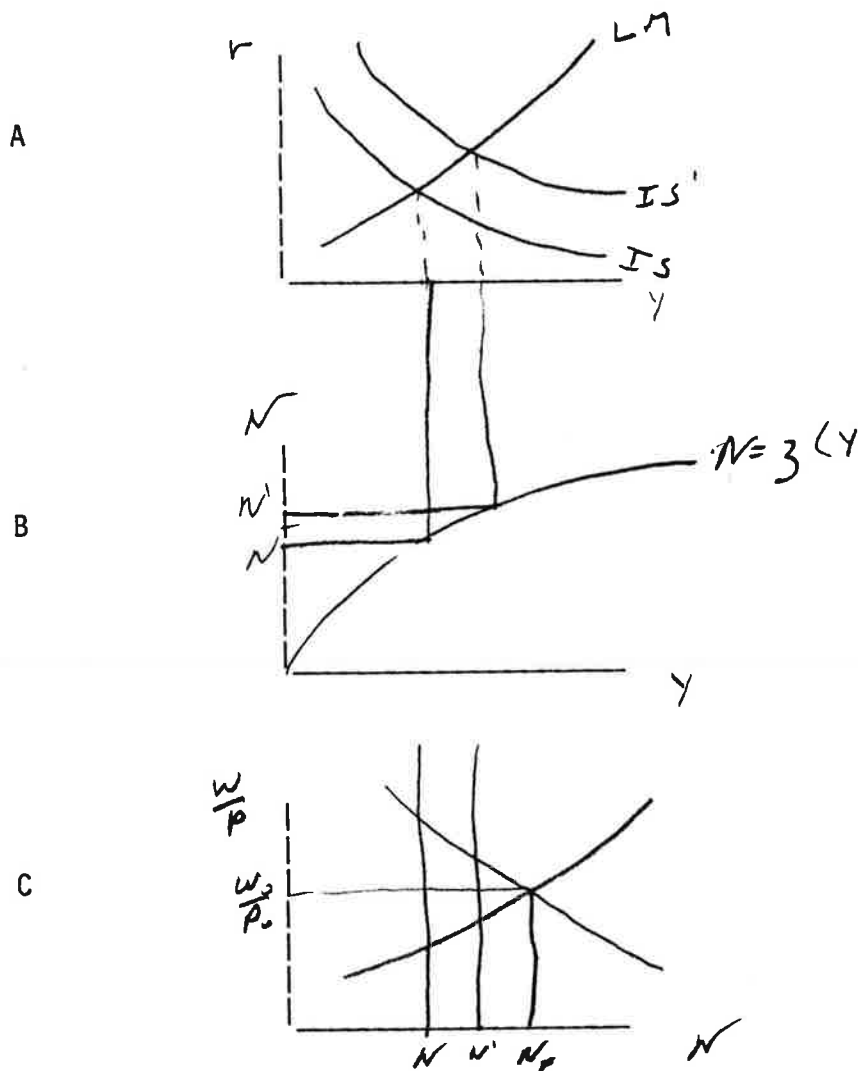
The accumulation paradigm treats the economy as generating flows in historical time. The current determinants of flows include current

views of expected flows. How current developments affect expected flows determines whether the system has some natural habitat in terms of labor market conditions. The effects of current unemployment on expected future profit flows (by way of price levels) and therefore in the expected ability of profit receiver to validate debts entered into at today's or past price levels is a major determinant of whether the system is a seeker and sustainer of full employment. Effective demand failure is a concept that is foreign to the market clearing resource utilization paradigm (such failures make the economy incoherent) whereas they are natural to an accumulation paradigm.

## IV. Incoherence and Accumulation Models

If we begin with the Hicks IS-LM formalization (A), an employment function (B) and a classical labor market in which both labor supply and labor demand are functions of real wages (C) the Patinkin real balance equilibrating relation can be illustrated.

DIAGRAM III

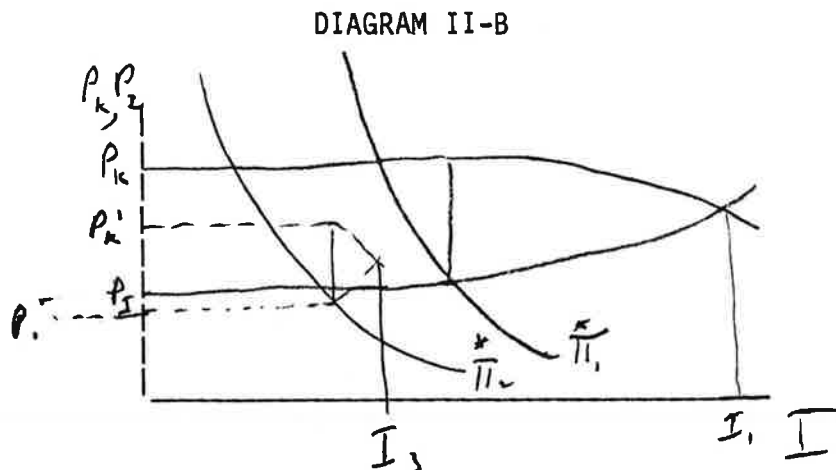


With  $W_0/P_0$  as the "inherited" real wage and  $N$  as employment in  $C$ , excess supply of labor results in falling wages and prices, which are ineffective in increasing employment. However, the fall in money prices increases the money value of cash balances which raises consumption (a parallel effect may take place in the LM curve, lowering  $r$  as the real quantity of money increases). The resulting increase in aggregate demand raises labor demand so that a progression towards  $N_F$ , full employment, takes place.

Implicit in any operation of the economy is a flow of profits; in the simple Kalecki case profits equal investments. Given the inherited liability structure the payment commitments on debts are given by contracts entered into the past that are falling due. Thus if  $qky$  is the gross capital income and CPC are the cash payment commitments (always a nominal value) the interal financing constraint (ignoring taxes) is

$$\pi^* = qky - CPC$$

However,  $qky$  equals nominal investment, so that a fall in prices lowers gross capital income. Because of the cash payment commitment, the percentage change in  $\pi^*$  is greater than in  $qky$ --the gross capital income.



In Diagram II-B a plausible arrangement of  $P_K$ ,  $P_I$ , and  $\pi^*$  after a fall in prices is illustrated. With  $I_3$  of investment, the IS curve in Diagram I shifts downward, making things worse.

The Gross Capital Income, Cash Payment Commitments relation embodies a nonperformance or financial stringency ratio for firms. We can consider a frequency distribution of profits and a frequency distribution of gross payment commitments for firms. The stringency ratio depends upon the firms that are simultaneously high on cash payment commitments and low on gross capital incomes. A downward shift in the aggregate gross capital income associated with falling prices will increase the number of firms for which gross profit flows fail to satisfy payment commitments by a margin sufficient to quiet the fears of bankers, business men and credit rating services. The effects of financial stringency for some is to increase the value of liquidity and to decrease the expected payoff from leveraging for all. Price declines in response to excess supply of labor operating by way of financial stringency shifts the LM curve of IS-LM upwards even as it decreases the desired leveraging ratio for new investments.

Thus the equilibrating mechanism through intermarket relations that is so vital to the various economic models and theories that share "full employment" (or the natural rate of unemployment) as the natural habitat of the economy breaks down when the markets affected by the own market movements due to unemployment are extended to include the fulfillment of maturing financial contracts and the leveraged financing of investments.



## V. Conclusion: The Greater Power of the Accumulation Paradigm

A theory's power is determined by the breadth and depth of the questions it addresses and the research program to which it lends. By these criteria the accumulation paradigm is more powerful than the resource utilization paradigm. The main aim of the research program of the resource utilization paradigm was achieved in the 1950's with the proof of the existence of equilibria for competitive economies [K. Arrow and G. Debreau (1954) Existence of Equilibrium for a Competitive Economy, Econometrica 22, 265-290]. However, this success was achieved by setting very strict conditions on the "economy" being investigated. As the two Cambridge Debates clarified, the restrictive assumptions upon production relations, that are required for the extension of the static Arrow-Debreau results to economies that accumulate, makes the lack of relevance of the results, for the analysis of our economy through time, apparent. The research program for the resource utilization paradigm that followed from these results was to "open up" the production and preference relations to encompass inter-temporal relations has to date been technically adroit but largely devoid of substance. Either the modern equivalent of perfect foresight (rational expectations) or equilibria constrained by market imperfections (disequilibrium economies) have been introduced. Neither schema can explain the cyclical performance except by introducing outside "evil" or "incompetent" forces. In particular, since the success of Arrow-Debreau, the limited relevance of the resource utilization paradigm for the analysis of the problems of an economy with a complex financial system has become evident [F. Hahn ].

Macroeconomic models based upon the Patinkin and Modigliani framework showed that by considering a limited set of interrelations it was possible to construct an equilibrating model. However the models are powerless to explain

the from within the economy generation of the initial disequilibrium. With the rational expectation addenda to neo-classical macroeconomic models it became clear that the only ways in which a "disequilibrium" can be brought about is by some unanticipated exogeneous shocks. The macroeconomic models of the neo-classical synthesis are not capable of generating and therefore explaining the pattern of development of the economy in the past decade and a half except by positing appropriate exogeneous shocks and policy errors. No wonder the neo-classical economists tend to gravitate to a devil theory of economics system malfunctioning (i.e., the Federal Reserve is responsible) or to explanations in the form of specific institutional features--the hulubalu about lagged reserve calculation.

The accumulation paradigm for a capitalist economy immediately sets up a series of related processes in time: income, profits, wages and capital asset values, financial instruments and cash payment commitments. Differentiated rates of growth as well as differentiated responses to the state of the system set-up stresses and strains that lead to disparate price movements. Within an accumulation paradigm the concept of stressless growth or development through time is absurd. Given the endogenous development of stresses, policy intervention to offset the effects of these stresses seems necessary. Policy, even if anticipated, is effective if it corrects an objective situation that was determining inappropriate reactions through time.

Whereas the resource utilization microeconomics cannot be extended to generate the cyclical behavior and intermittent traumatic reactions of the economy, the accumulation based theories that intepret finance can generate the types of developments observed in the economy. Furthermore, as Sraffa has shown, coherent relative price systems can be derived from costs; prices within

the accumulation paradigm are the means by which producers recover costs. Thus a micro-macro integration is possible but it takes the form of first determining aggregate profits (a macroeconomic idea) and then allowing tastes and preferences to distribute these profits among the several lines of trade and production. In this accumulation paradigm approach, profits as distributed, result in liability structures and asset values derived from the past being validated, more than "validated," or "repudiated." If more than validated, an upward expansion occurs which has serious repercussions; if less than validated, a downside contraction occurs which has serious repercussions. Furthermore, these are not within the market mechanism that keeps the profit flows within the just-validated margins. Within this framework institutional constraints and policy interventions are needed to prevent both "inflation" and "deflation." The resource accumulation paradigm leads to results that are consistent with the observations of the 20th century to the effect that "big government capitalism works better than small government capitalism," which is an answer to a question that the resource utilization paradigm cannot even address--but which is a question that economists must be able to answer.